Panasonic

10th Generation Plasma Panel Replacement



This seminar covers 10th generation models

Panasonic Service and Technology Company

National Training

Panasonic ideas for life

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Panasonic Service and Technology Company
National Training

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Warning

This service information is designed for experienced repair technicians only and is not designed for use by the general public. It does not contain warnings or cautions to advise non-technical individuals of potential dangers in attempting to service a product. Products powered by electricity should be serviced or repaired only by experienced professional technicians. Any attempt to service or repair the product or products dealt with in this service information by anyone else could result in serious injury or death.

Summary

This seminar covers:

- Procedure to prepare the panel report form.
- Familiarization with symptoms exhibited by defective panels.
- Front cabinet removal procedure.
- Panel replacement procedure.
- Procedure to correct introduced problems after replacement.
- Adjustments procedure.
- Final inspection

Topics

PDP Panel Replacement Report

Required Equipment

Proper Grounding Procedure

Front Cabinet Removal

H/DG Block Assembly Removal

Panel Cable Removal/Installation

Check-list After Panel Replacement

Colorimeter

White Window Pattern

Preparation for Adjustment

Presetting Brightness and Contrast

Setup

Driver Set-up Adjustment

White Balance Adjustment

Cleaning Procedure

Glossary

Plasma Display Panel Replacement Report

Plasma Display Panel Replacement Report

(Panasonic use only)

Company:	PASC / PBTSC	Replacement Date:	
Panel Warranty:	YES NO	Report Date:	
Reporter:		Fax:	
Telephone:		E-Mail:	

Symptom:

Black bar, top center screen, halfway down.

Customer Name:	John C. Consumer		
Cust Address:	123 Main St		
City / State / Zip:	Anytown, CA 98765		
Work Order #:	11-562485-00	Date of Purchase:	November 30, 2005
Model #:	TH-42PX25	Date Service Requested:	December 27, 2005
Serial #:	YJ1520161	Date Completed:	January 6, 2006
Panel Serial No. Code:	YJ1520161	Authorization #:	0118795487

Picture of Symptom:



SETTING

Picture Mode	Dynamic	Normal	
Aspect	AUTO	JUST	4:3
	ZOOM1	ZOOM2	16:9
White Balance	WARM	NORMAL	COOL
Manual WB	ON	OFF	

CONNECTION

Signal Format	NTSC	PAL/SECAM	PAL60	VGA/SVGA
	RGB	COMPONENT	ALL	
Signal Source	CTV	VCR	DVD	PC
	CVC	STB	ALL	
	Other			

Servicer's Name:	Service Center			Account #:	0054321-0012
Contact:	John M. Servicer				
Address:	563 Timbuktu Drive				
City / State / Zip:	New Town, CA 98764				
Telephone:	574.123.4567	Fax #:	574.123.4568	E-Mail:	JohnServicer@Provider.com

Operation Time:		Hours:	55	Power ON/OFF Times:	100
Warranty Status:	YES	Confirmed by:	John M. Servicer		

Defective Panel:	Returned:	YES	Confirmed by:	John M. Servicer	
Return Status:	Carrier:	World Shippers	Tracking #:	A1ZT546584525478	

ARRIVAL CONDITION (Factory Use Only)

DATE:	PANEL SERIAL #:
COURIER:	SYMPTOM:

CONSUMER MODEL

E-Mail this report to:

PASCTECHHOTLINE@US.PANASONIC.COM

Panasonic Technical Hotline
50 Meadowlands Parkway 2B-6
Secaucus, NJ 07094
(800) 743-2335

** Gray shaded areas are for Panasonic's use only

Pictures

1- Serial Number of Unit



2- Serial Number of Panel



3- Factory Use Only



4- Red Screen



5- Green Screen



6- Blue Screen



Comments - Describe special circumstances, troubleshooting and repairs attempted:

Replaced the "C" board

Form PR-20051201

Blank Form Download Procedure (1)



Blank Form Download Procedure (2)



Blank Form Download Procedure (3)

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Plasma Display Panels



TRAINING COURSES

eLearn Courses:

- ***Pre-recorded and Live eLearn Sessions***
- Plasma GP9/GPH9D Chassis Course Content
- GP9/GPH9D Symptoms and Cures Course Content
- Digital Tuning Systems Course Content
- Schedule and Session Passwords

TECHNICAL GUIDES

- Plasma Service Handbook for Most Models
- HDAVI - FAQ

- **HD Plasma** - 10th Generation Models
 TH-*nn*PX-700
 TH-*nn*PX750
 TH-*nn*PZ700
 TH-*nn*PZ750
- Technical Guide
- Troubleshooting Flowcharts
- Board Recommendations

- Plasma - 10th Generation - TH-*nn*PX75-PX77 Technical Guide
- Plasma - 10th Generation - TH-*nn*PX75-PX77 Troubleshooting Flowcharts

- Plasma - 103" Monitor Technical Guide

- Plasma Panel Replacement Guide

- **GP9/GPH9** - Troubleshooting Flow-Charts - PT-nnPX6, PX60, and PX600
- **GP9/GPH9** - Isolating 10-blink Error code causes in PT-nnPX60 and PX600
- **GP9/GPH9** - PT-nnPX60 and PX600 Training Course Presentation and Guide
- **GP9/GPH9**PX60 and PX600 Symptoms and Cures

- **PX50** 10-Blink Troubleshooting Chart
- **GP8DU** and **GPH8DU** Chassis Troubleshooting Charts
- **GP8D** Technical Guide

- **GP6/7D** and **GPH6/7D** Chassis Troubleshooting Charts
- **GP6DU/GPH6DU & GPH7D** Chassis Technical Guide
- **GP6D** Technical Guide

TECHNICAL TIPS, BULLETINS, and DOWNLOADS

- **Plasma TV / Monitor Tips**

- **PX6/60/600 Symptom - Board Replacement Recommendations**
- **PX50/500 Symptom - Board Replacement Recommendations**
- **Pictures of Symptoms Associated with Boards and Panel**

- Examples of Symptoms Associated with Defective Plasma Display Panels
- TH-nnPD25 and PX25 Service Fixture TNPX25JIG Instructions - SB-B19-04-12

- **Firmware Downloads**

Blank Form Download Procedure (4)

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- GP9/GPH9 - Troubleshooting Flow-Charts - PT-nnPX6, PX60, and PX600
- GP9/GPH9 - Isolating 10-blink Error code causes in PT-nnPX60 and PX600
- GP9/GPH9 - PT-nnPX60 and PX600 Training Course Presentation and Guide
- GP9/GPH9PX60 and PX600 Symptoms and Cures

- PX50 10-Blink Troubleshooting Chart
- GP8DU and GPH8DU Chassis Troubleshooting Charts
- GP8D Technical Guide

- GP6/7D and GPH6/7D Chassis Troubleshooting Charts
- GP6DU/GPH6DU & GPH7D Chassis Technical Guide
- GP6D Technical Guide

- GP5D/GPH5D Technical Guide

- Basic Plasma Concept
- All You Need to Know about Power Supplies
- Lead Free Solder and Desoldering Techniques
- How to solder Surface Mount Devices
- **Factory Prepared Technical Guides**

MULTIMEDIA RESOURCES

- Downloadable Video Pattern Images

SERVICE LITERATURE INFORMATION

- Electronic Service Manuals (ESM)
- TSN Index
- Using TSN CD-ROMs
- How to Order TSN & Paper Manuals

OWNER'S MANUALS

- Live Manuals
- Products in 3D
- Operating Instructions

SERVICE POLICIES & RELATED FORMS

1. **Plasma Panel Replacement Admin. Bulletin**
2. Plasma Panel Field Report Information (Must Read)
3. Report Instructions
4. Defective Panel Return Instructions
5. Unpacking and Repacking Instructions
6. **Download Form**

- 2-day Service Program Details
- Models Eligible for 2-day Service Program
- Hotline-Release PCBs
- Component Level Repair PCBs
- PCB Dud Values
- Elimination of PTV Control Number

Blank Form Download Procedure (5)

Before Replacing a Plasma Panel Assembly:

- You must be an Authorized Service Center.
 - **For Consumer products** - Plasma TV, Code B34.
 - **For Broadcast products** - Plasma, Code D18.
- You must have received training on Panel Replacement from Panasonic.
 Contact your Field Service Representative for details.
- To have a panel released:
 - **For Consumer products** - You must contact the Technical Hotline at 1- 800-743-2335. Be prepared to furnish the following information:
 - Your company's account number
 - The unit's model and serial numbers
 - Pictures of the symptom
 - Description of the failure and troubleshooting performed
- A Plasma Panel report must be completed and submitted upon job completion. Read the Instruction sheet of the panel report before proceeding.

 IMPORTANT: Defective panel must be returned to Panasonic before parts warranty reimbursement can be made.

 Click here to read the unpacking/repacking instructions

 Click here to read the instructions on how to complete the report

 Click here to view a sample of a completed report

 Click here to open or download a blank report now

 - **For Broadcast products** - You must contact your Field Engineer, who will determine need and authorize release of the panel.
 1- 800-524-1448.
- Required Equipment:
 - **A stand** - Part # TY-ST05K or Equivalent. Available from Panasonic's Parts Department - Call 1- 800-833-9626
 - **An oscilloscope** - Dual Trace - Delayed Sweep - 100MHz, or Better
 - **A DVM**
 - **A digital camera**
 - **Microsoft Excel 97 or later**
 - **E-mail Service**
 - **Hand Tools**
- Optional Test Equipment
 - **Digital TV Signal Generator** - Sencore* VP300 or equivalent
 - **Colorimeter** - Sencore* CP5000 or equivalent

Required Equipment

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- **A digital camera**
- **Microsoft Excel 97 or later**
- **E-mail Service**
- **Hand Tools**
-

Optional Test Equipment

- **Digital TV Signal Generator - Sencore* VP403C or equivalent**
- **Colorimeter - Sencore* CP5000 or equivalent** (Colorimeter measures the screen's color temperature).

Follow proper grounding procedure

Warning:

Make sure to follow proper grounding procedure when involved in Plasma TV panel replacement. Many electronic components used in this Plasma TV are very sensitive to Static Electricity.Further damages can be caused to the set if these measures are not observed.

Electrically conductive wrist band, bench top mats, floor mats, toes/heels grounders, paint and floor finishes are recommended as measures of prevention against electrostatic discharge.











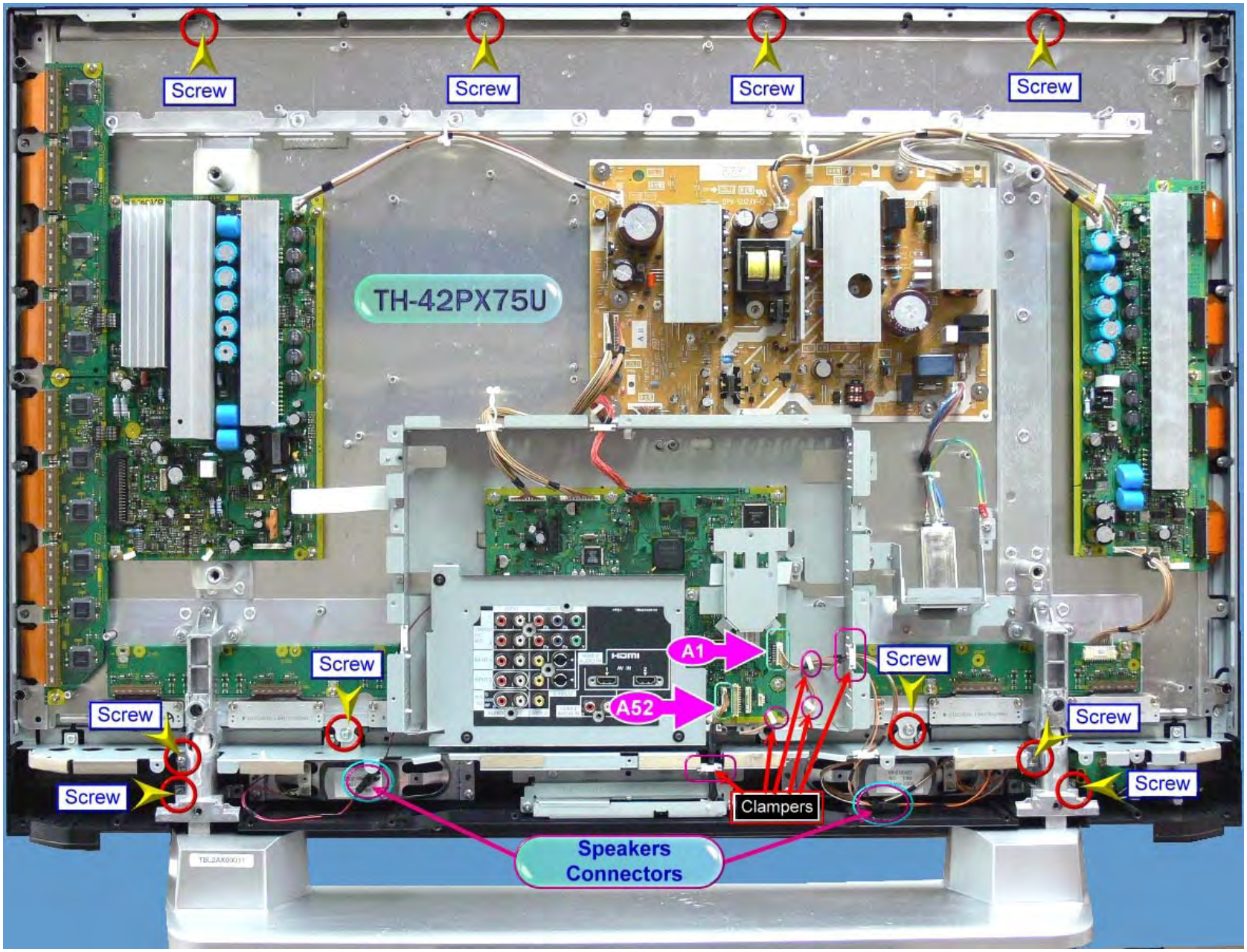
Front Cabinet Removal Only (TH-42PX75U)

Follow this procedure when only removing the “Front Cabinet”.

If the front cabinet needs to be removed for glass replacement or for any other reason, it’s not necessary to disassemble the entire TV to do so. This can be done by only removing a few screws and a few connectors. (For illustration, see the picture on the next slide)

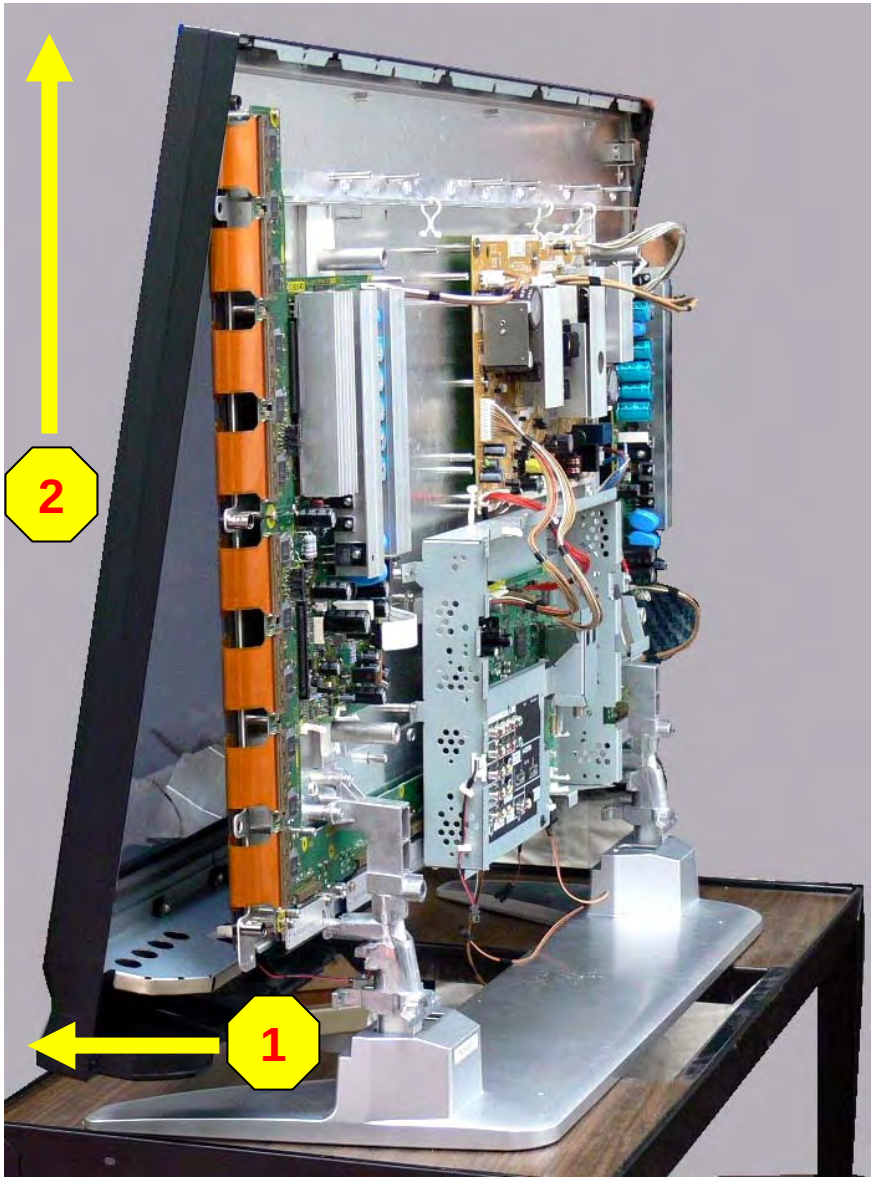
1. Remove the screws securing the TV’s rear cover
2. Remove the rear cover
3. Disconnect the left and right speakers wires.
4. Disconnect connector A1 and A52 from the A board (Release cables from the clampers as indicated on the picture of the next slide).
5. Remove 6 screws from the panel and 4 screws from the stand bracket.

Front Cabinet Removal Only TH-42PX75U

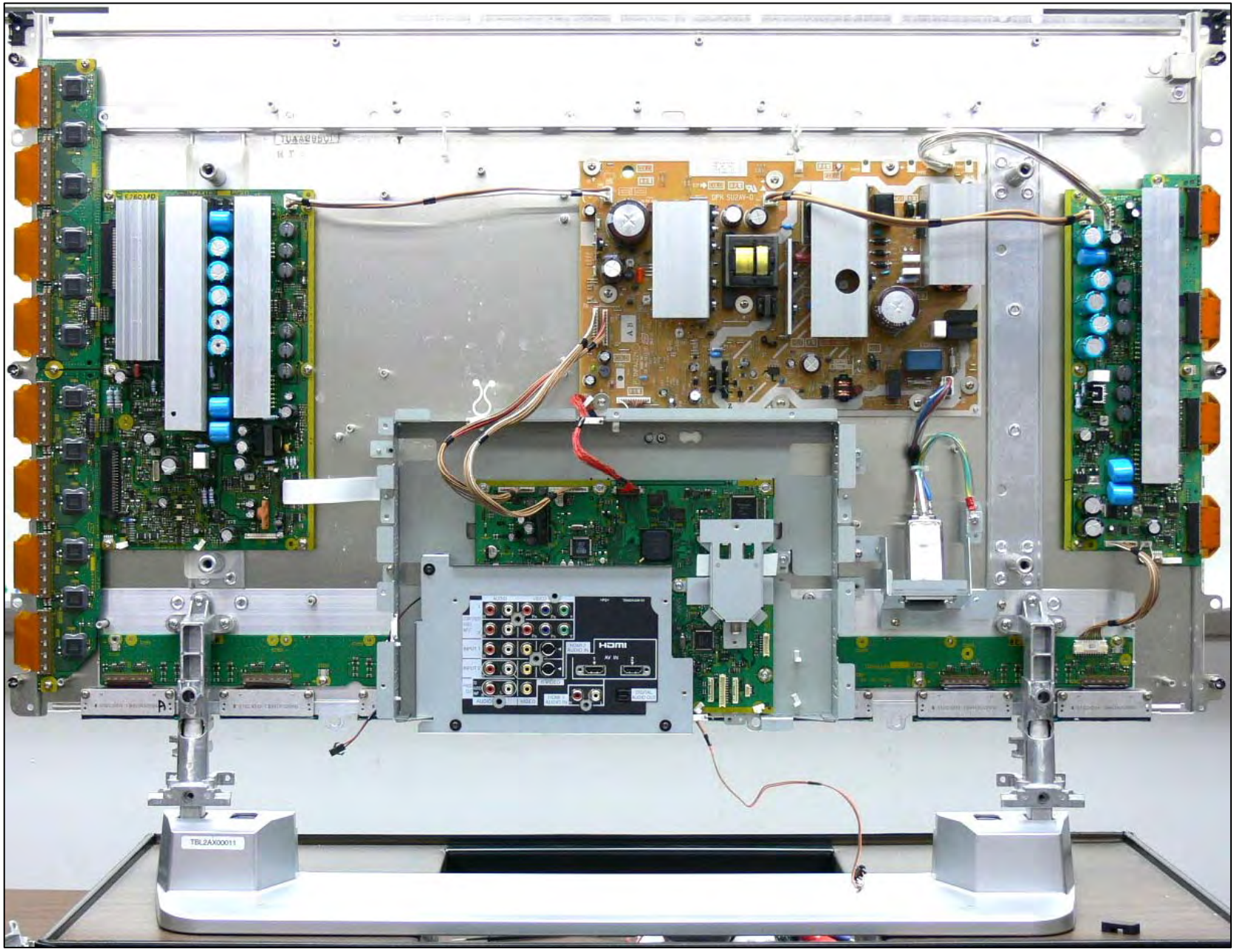


Front Cabinet Removal Only (TH-42PX75U)

To remove the front cabinet, tilt the bottom out and lift up slightly.



Picture Of The Panel After Removing the Front Cabinet



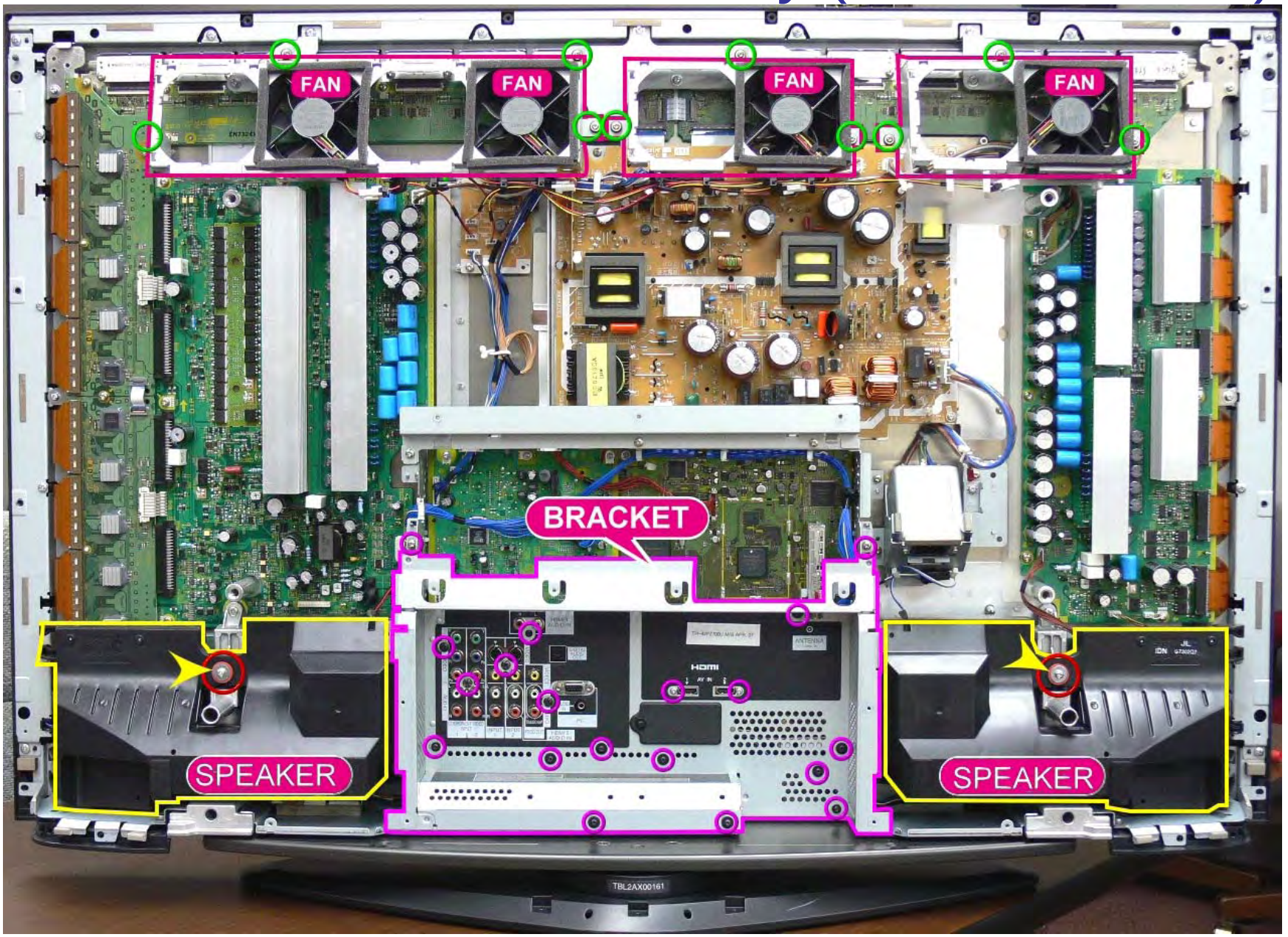
Front Cabinet Removal Only TH-42PZ700U

Follow this procedure when only removing the “Front Cabinet”.

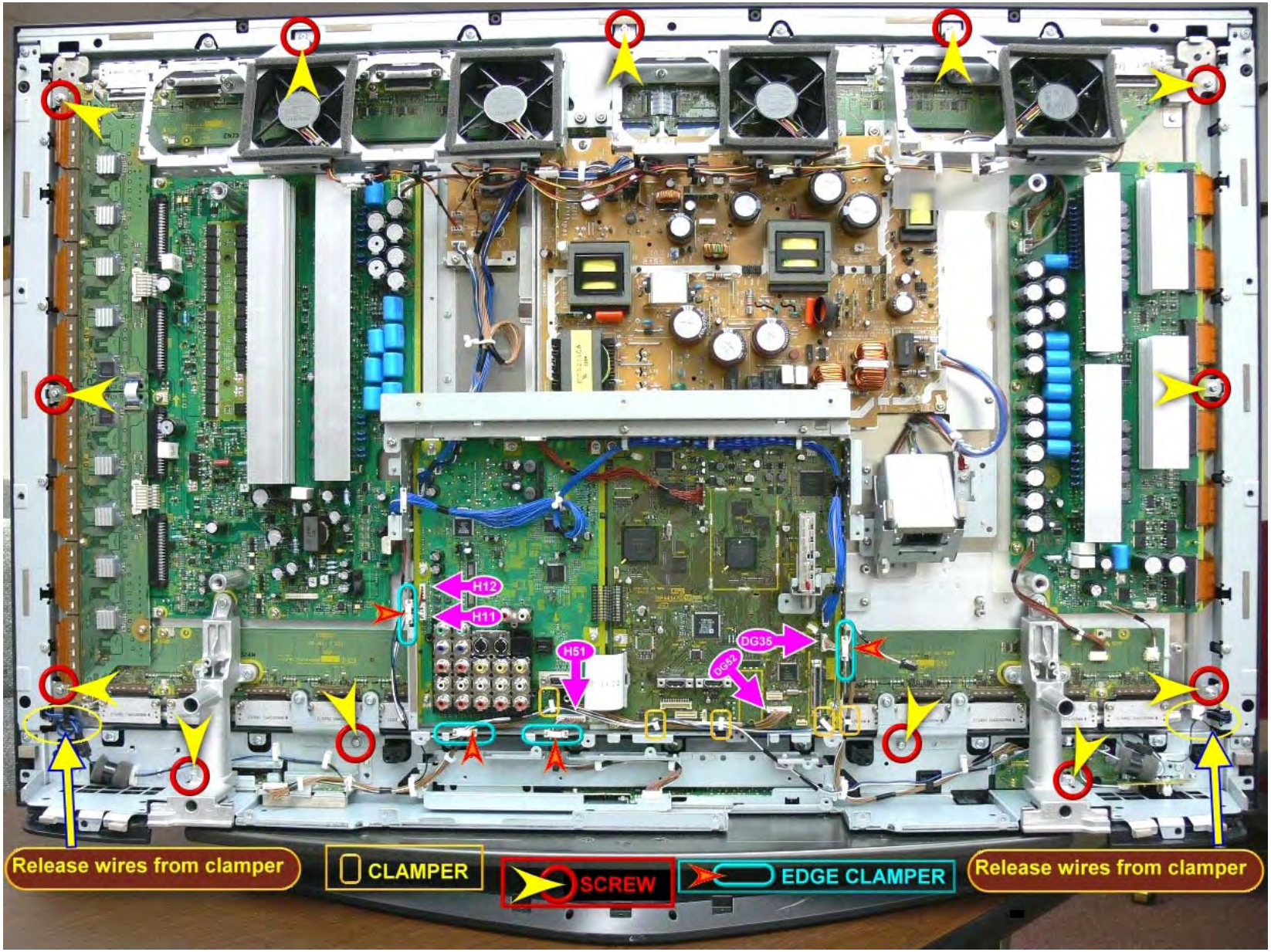
If only the front cabinet needs to be disassembled, remove the metal bracket located on the front of the H/DG board assembly and also remove the left and right speakers. (For illustration, see the pictures on the next 2 slides)

1. Remove the TV’s rear cover
2. Remove 18 screws securing the metal bracket in front of the H and the DG board.
3. Remove the metal bracket.
4. Disconnect the left and right speakers wires.
5. Remove the L and R speakers. (Remove 1 screw as indicated on the picture of the next slide)
6. Disconnect connectors H11, H12, and H51 from the H board and connectors DG35 and DG52 from the DG board. (Release cables from the clampers as indicated on the picture of the next slide).
7. Remove 11 screws from the panel and 2 screws from the stand bracket.
8. With the assistance of another person, hold the front cabinet and tilt the bottom out and lift up slightly to remove the front cabinet. (See picture on the previous slide)

Front Cabinet Removal Only (TH-42PZ700U)

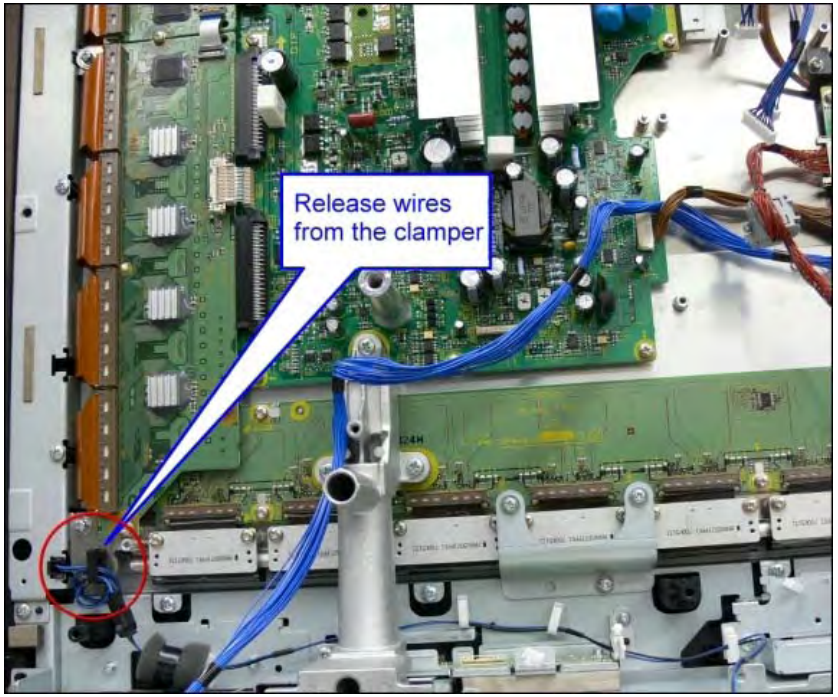


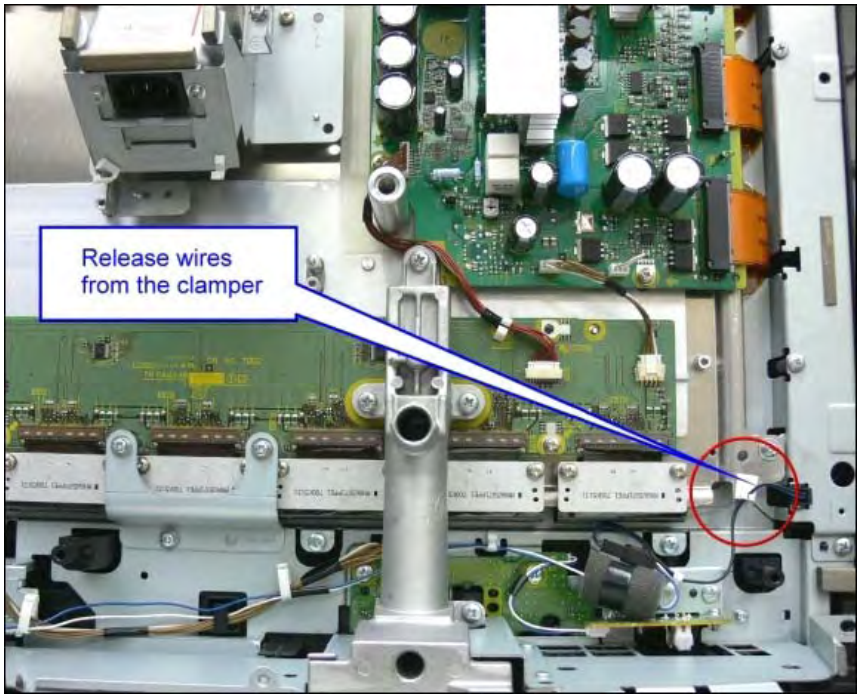
Front Cabinet Removal Only (TH-42PZ700U)



(TH-42PZ700U)

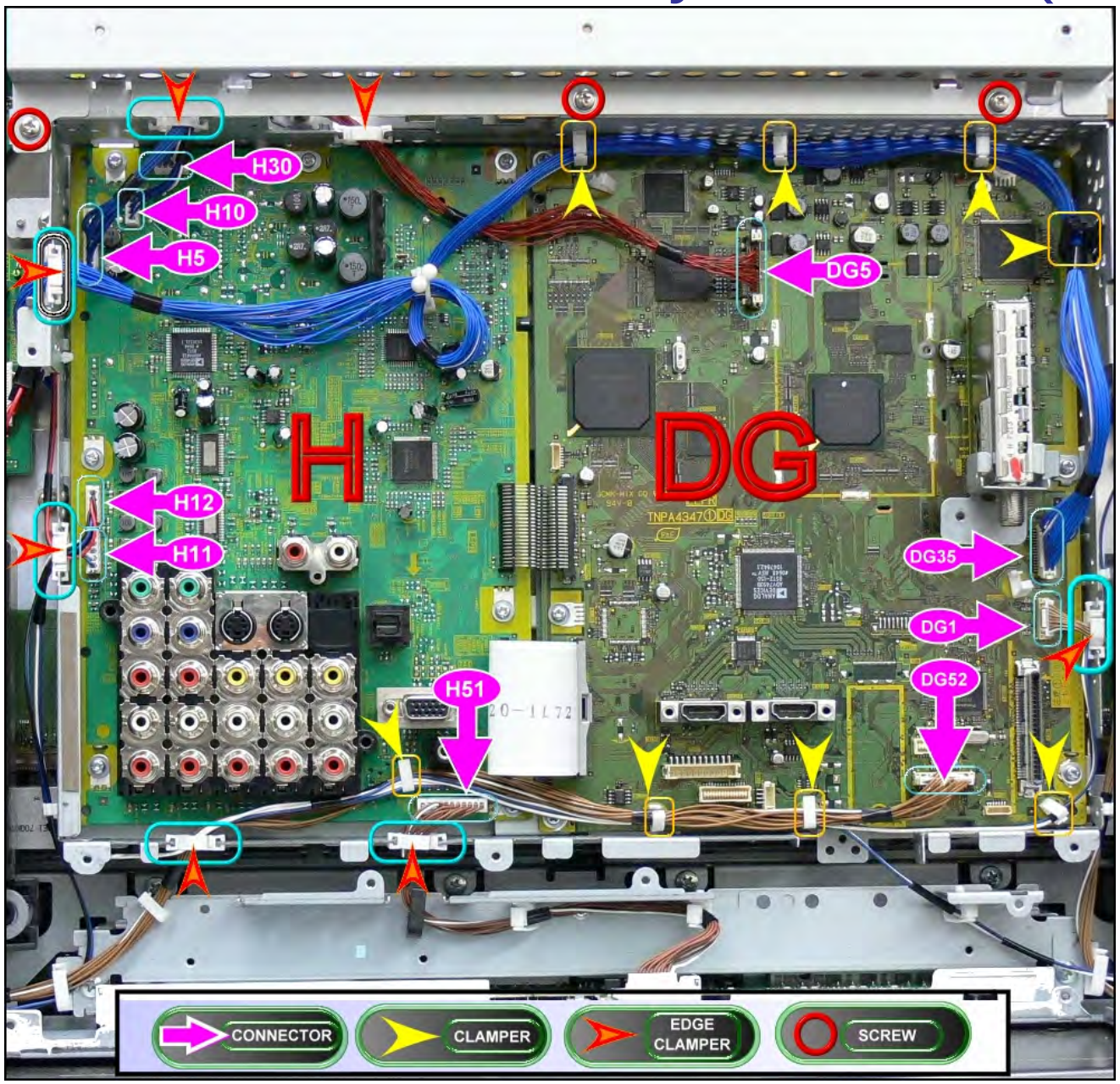
9. Release the Left and Right side speaker cables from the 2 clampers on the panel





Panel Removal

H/DG Block Assembly Removal (TH-42PZ700U)

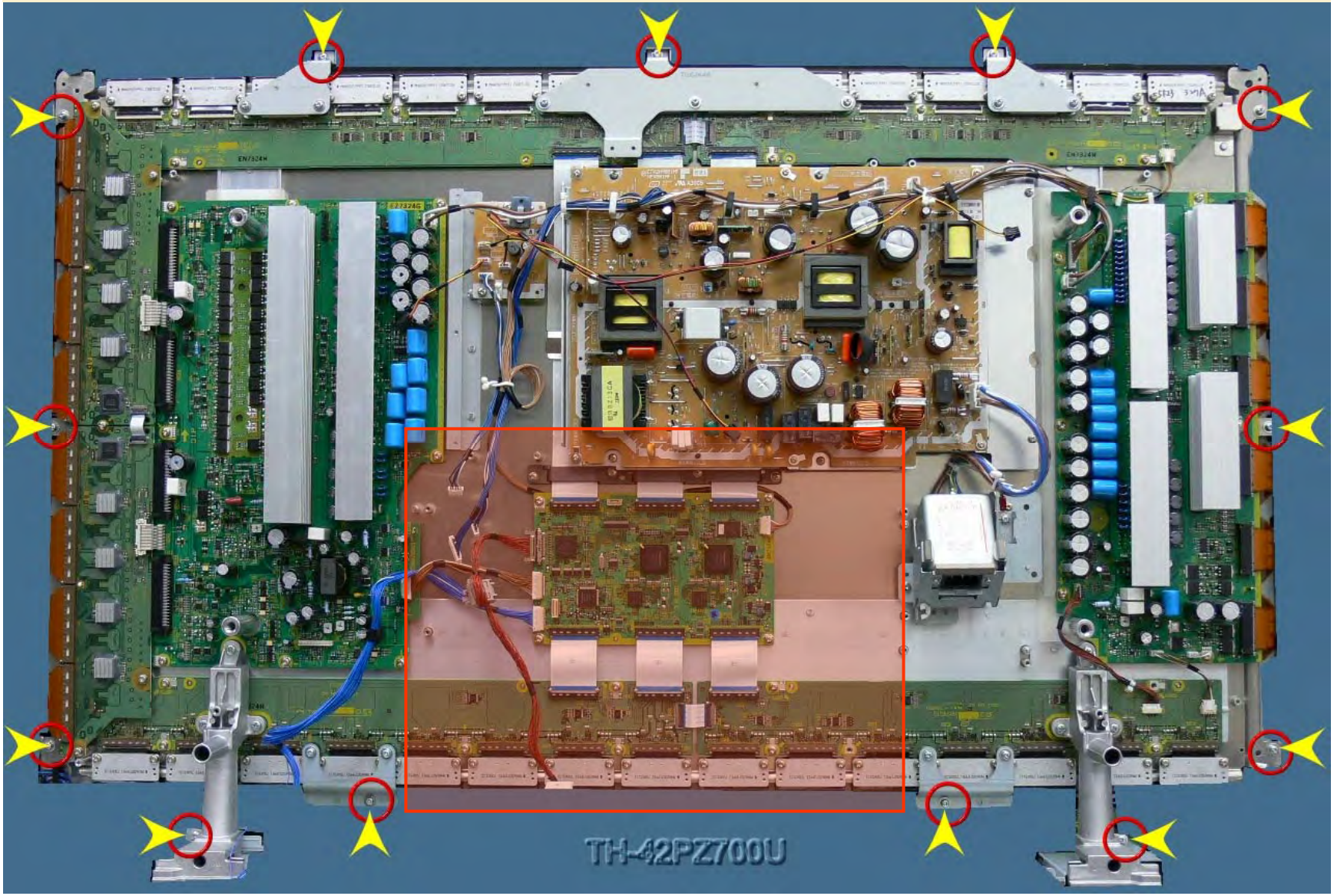


Follow this procedure after removing the front cabinet.

1. Remove connectors from the H and the DG board as indicated on the picture.
2. Release cables from clampers.
3. For models with a metal bracket attached to the top of the H/DG block assembly, remove the 3 screws on the bracket and remove it.
4. Remove the H/DG block assembly.

Panel's Screws (TH-42PZ700U)

5. Transfer the D, P SS, SC, SU, SD, PB, AC socket, and all brackets from the defective panel to the new panel.



Panel Removal (TH-58PZ750U)

1. Remove the TV's rear cover
2. Remove the screws securing the metal bracket in front of the H and the DG board.
3. Remove the metal bracket.
4. Disconnect the left and right speakers wires.
5. Remove the L and R speakers. (Remove 1 screw as indicated on figure 1)
6. Disconnect connectors from the H board and the DG board. (Release cables from the clampers)
7. Remove 14 screws from the panel and 2 screws from the stand bracket. (See picture on the next slide)
8. With the assistance of another person, hold the front cabinet and tilt the bottom out and lift up slightly to remove the front cabinet. (See figure 2)

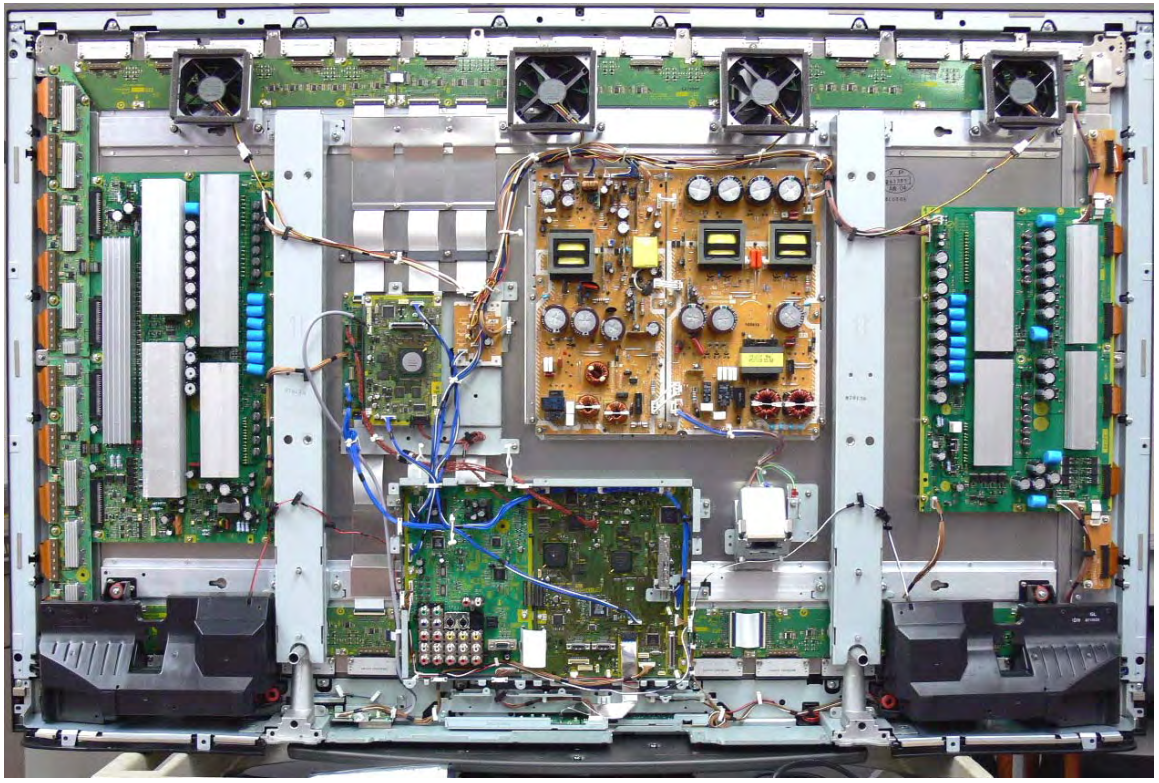


Figure 1

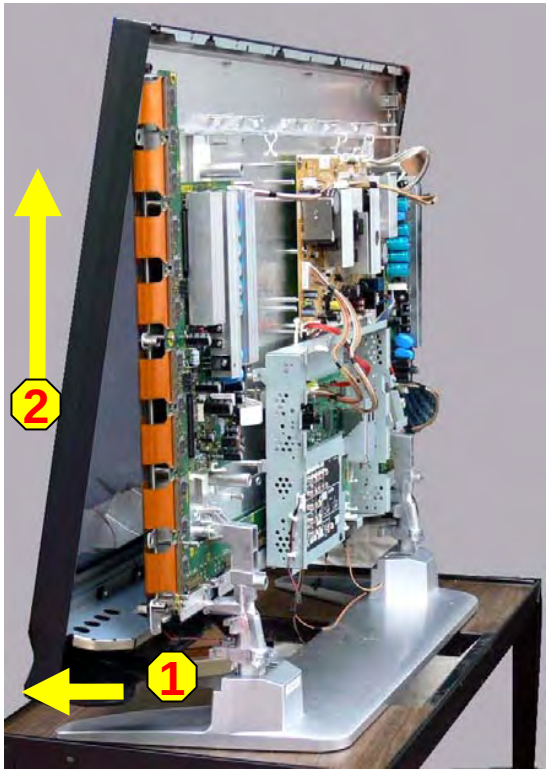
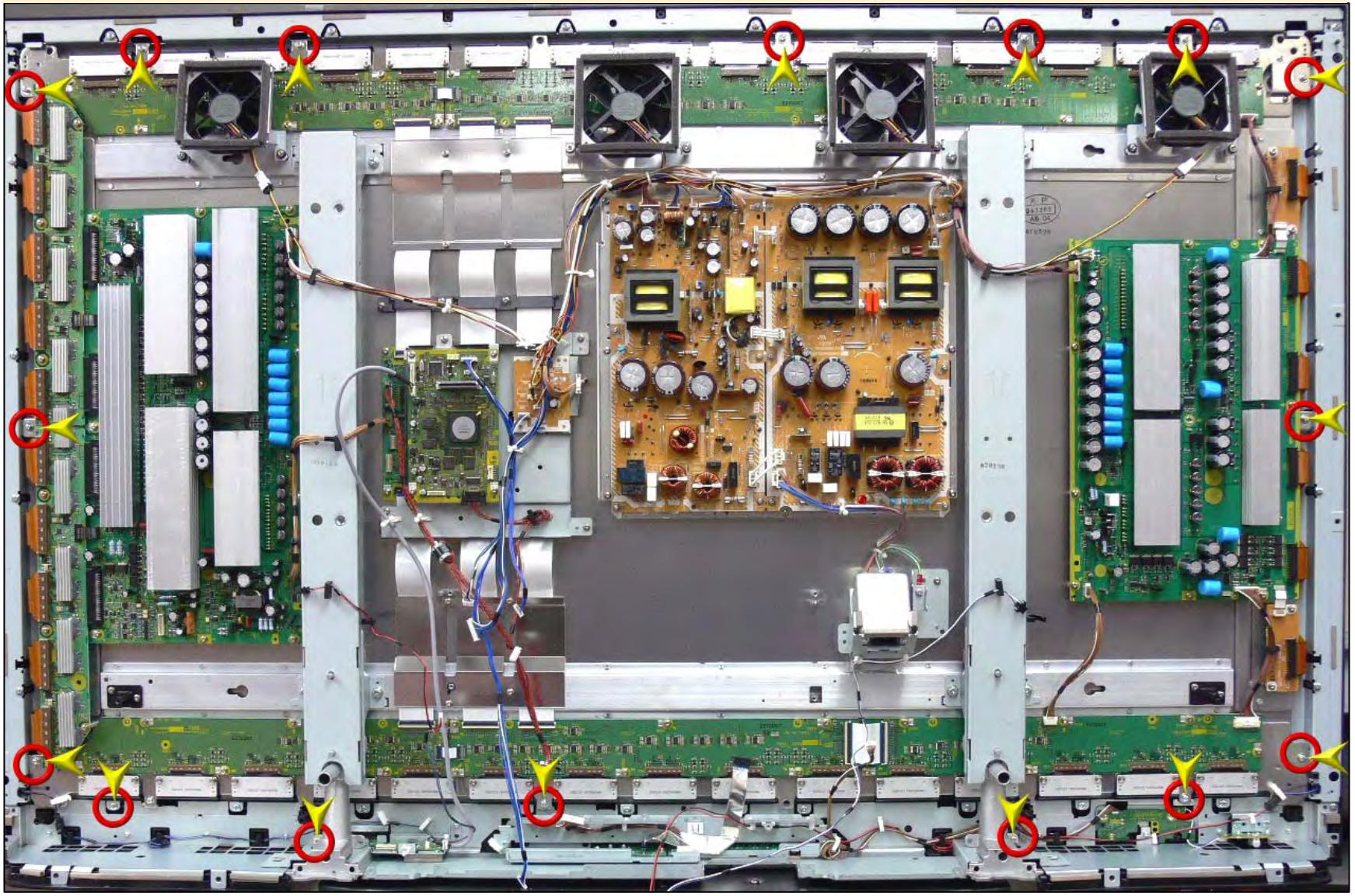


Figure 2

Panel Removal (TH-58PZ750U)

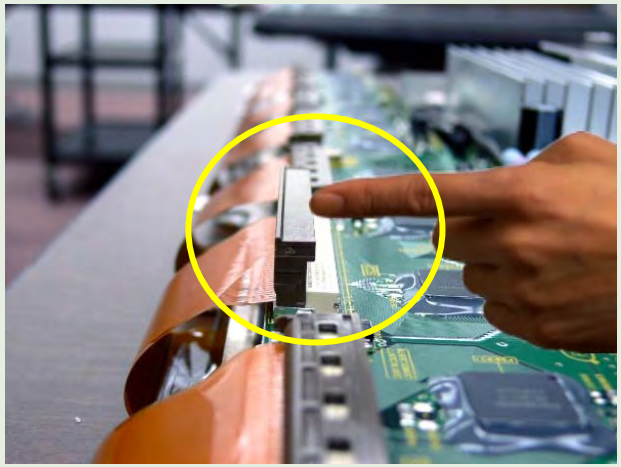
6. Remove circled screws and transfer the D, P SS, SC, SU, SD, PB, AC socket, and all brackets from the defective panel to the new panel.

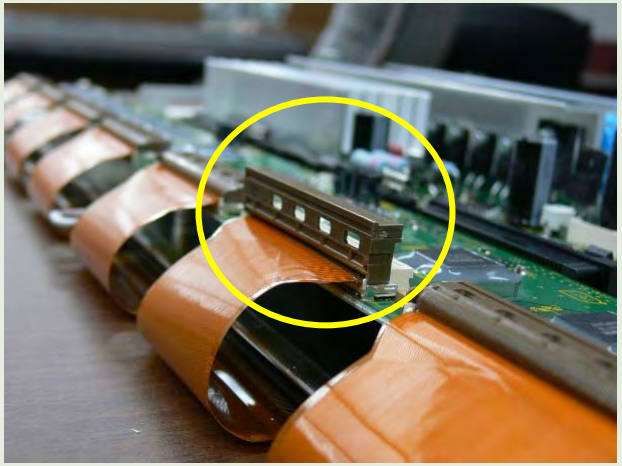


Panel Cable Removal/Installation

Cable Removal

To release the cables, flip the top to open.

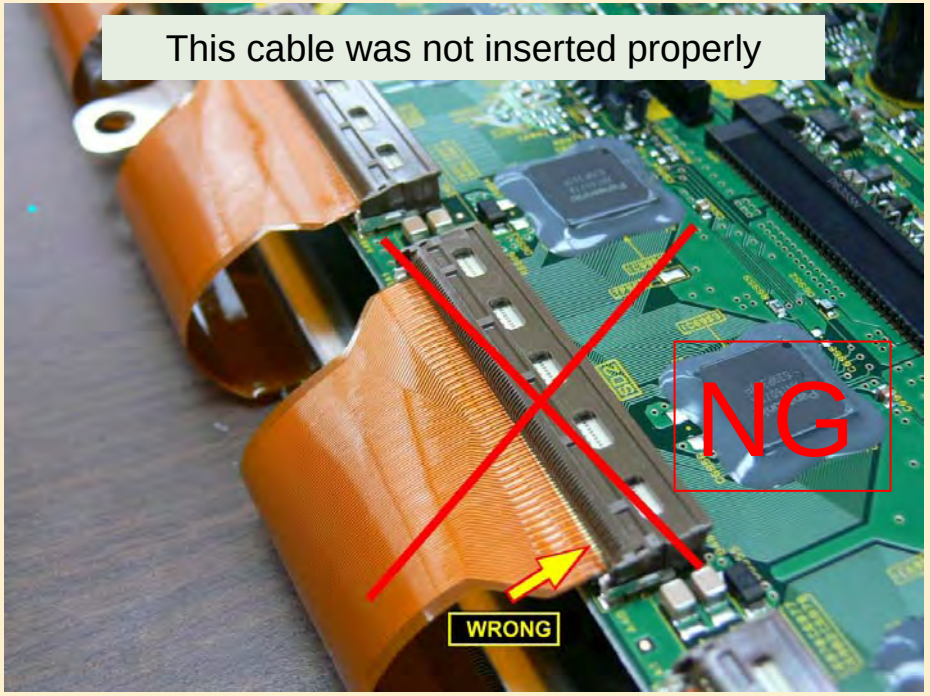




Cable Installation

The Flex-cables from the panel should be inserted straight into the connector. When locking the connectors, make sure the cables are seated properly.





Shipping Container

To remove the panel from the box:

- Cut the straps.
- Lift-up the top of the box.
- Remove the panel.

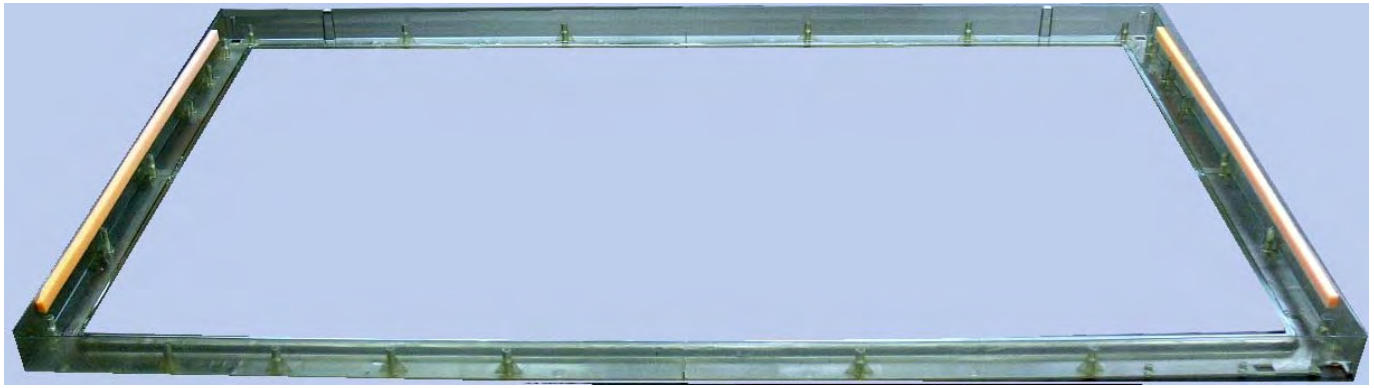


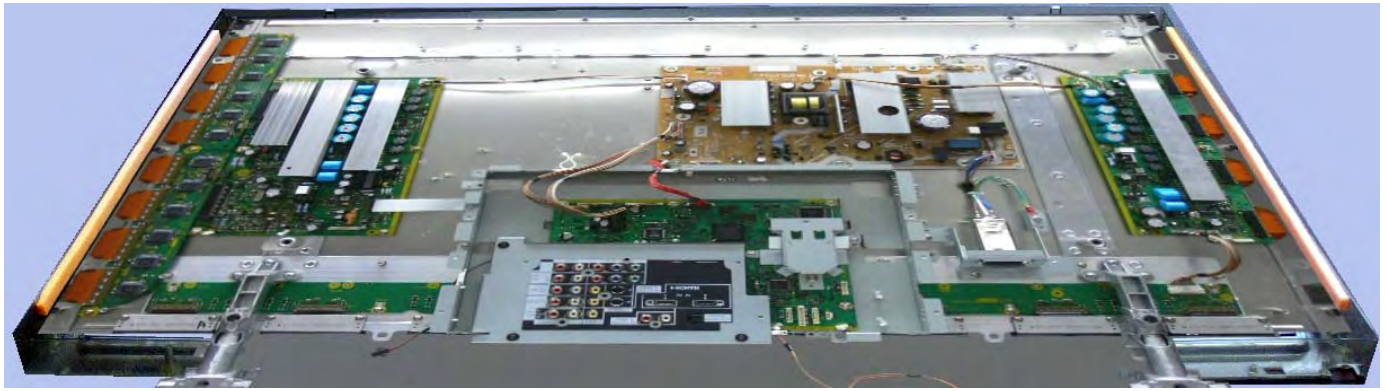
Protective Plastic Frame

Note: The new Panel is shipped in a plastic frame. Do not remove the screws holding the panel to the frame until the front cabinet is ready to be installed.

The PC boards from the old panel should be transferred to the new panel while it's still attached to the plastic frame.

Remove the screws from the plastic frame after the panel has been placed on the stand and then proceed to remove the plastic frame.





Check-List After Panel Replacement

1. Verify that the original complaint was corrected and no other problem was created.
2. Connect a video/audio signal and verify for proper operation.
3. Run the built-in patterns.
4. Make sure the screen is clean.

List of symptoms that may occur after panel replacement and solutions to correct them.

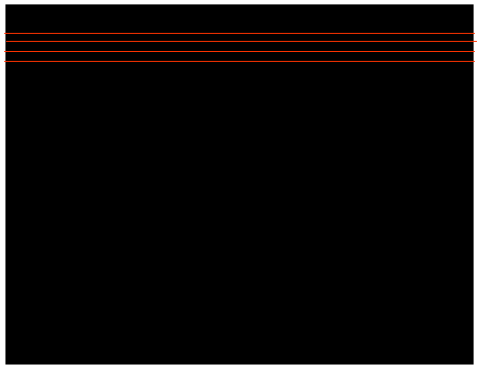
Symptom: The TV shuts down and the power LED blinks 6 times.

Solution: Check for missing cable between the C boards. Also make sure that the ribbon cables between the D and C boards are properly seated.

Symptom: The TV shuts down and the power LED blinks 8 times

Solution: Check for proper connection between the SS board and the panel flex-cables.

Symptom: Horizontal fine line(s).



Solution: Make sure that the flex-cables between the panel and the SU/SD boards are seated properly.

Symptom: Vertical bar(s.)



Solution: Check connections on the C board that drives the section affected. Also check for possible defective C board on the new panel.

Adjustments

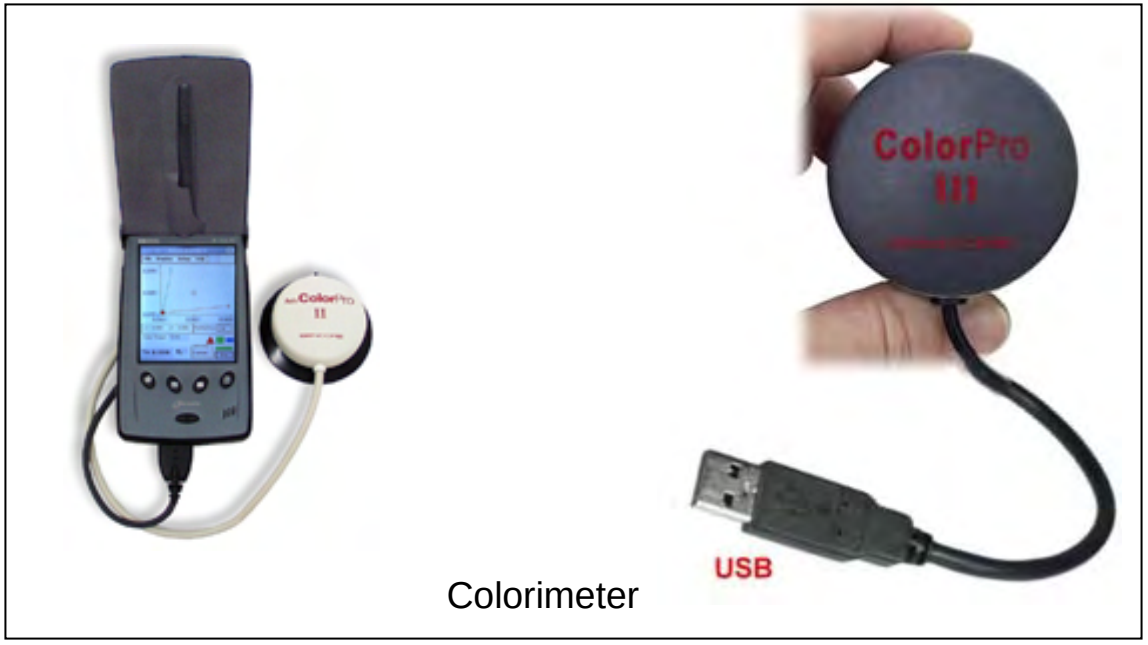
Colorimeter (Analyzer)

A **colorimeter** is a tool that characterizes color samples to provide an objective measure of color characteristics.
It is attached to the TV screen using suction cups to measures the light output of a display like a Plasma TV to allow the adjustment of red, green and blue cutoff and drive controls for a 6500 degree color temperature.
It provides:

- Color-temperature readings in kelvins (K)
- Light-output readings in foot-lamberts (ftL)
- The temperature's precise points on the CIE chart.

Color temperature definition

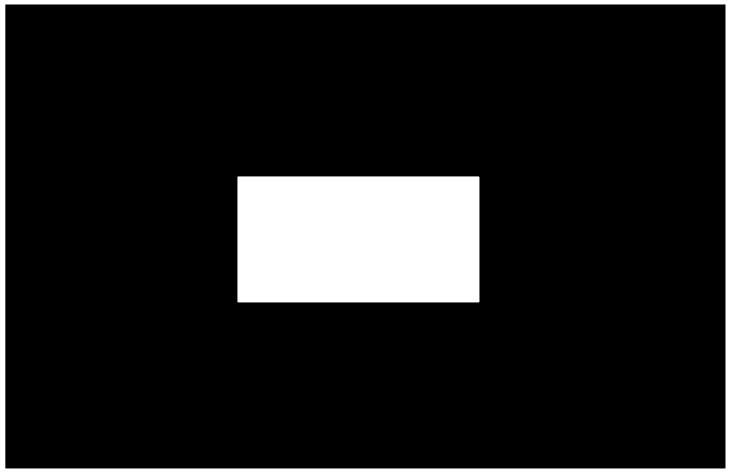
Is a measurement of the color of light radiated by an object while it is being heated.



Colorimeter

White window pattern

The White Window pattern is used together with a Colorimeter to measure the color of white or gray that a Plasma TV produces. This is known as the TV's white balance. The interior window is usually adjustable from 100 IRE (full white) to 0 IRE (full black) to allow the white balance to be measured and/or adjusted at any desired luminance level. The black background level remains fixed.
The pattern is often set to **70-80 IRE** to adjust a set of high luminance white balance adjustments and is set to **10-30 IRE** to adjust a set of low luminance white balance adjustments on a display.



70-80 IRE



10-30 IRE

Drive controls
The three-color-controls used to balance the bright end of the grayscale are typically called drive controls.

Cutoff controls
The three-color-controls used to balance the dark end of the grayscale are typically called cutoff controls.

Preparation for Adjustments

It is recommended that the Plasma panel goes through a burn-in period of roughly 200 hours before performing white balance adjustment.

Turn on the TV at least 30 minutes before adjusting it (The black level and the grayscale on most sets will drift during warm-up).

1. Preset the **brightness** and **contrast** controls.

 The brightness and contrast should be adjusted under the same lighting conditions in which the customer usually watches TV.

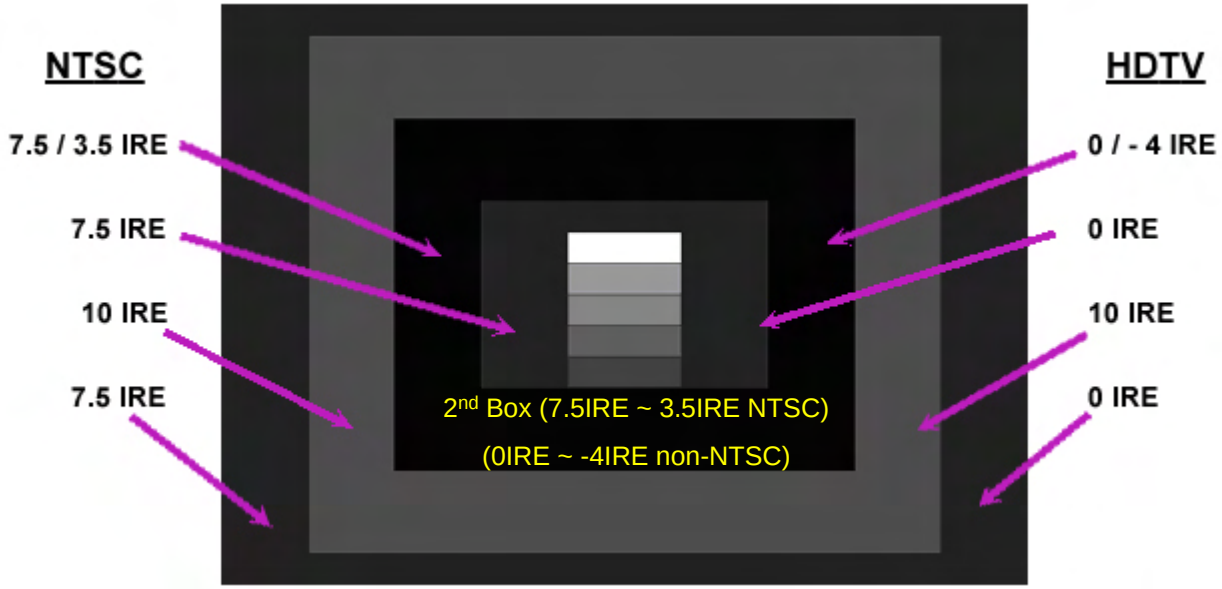
2. Adjust the **white balance**/gray scale tracking.
3. Adjust the user-menu defaults for the main user controls.

Note: The Plasma TV should be adjusted to the CIE D65 daylight standard (x = 0.313, y = 0.329) for best color accuracy with color program material.

Presetting Brightness Control

Brightness Control (Black Level Control)

The brightness control adjusts the light level of the darkest portions of a picture.
If the black level is set too dark, the subtle dark gray details of a scene are lost to black.
If it is set too bright, the darkest grays and deep blacks in the picture are all a lighter gray, which lowers the contrast ratio of the display, reducing picture quality.



The Pluge pattern

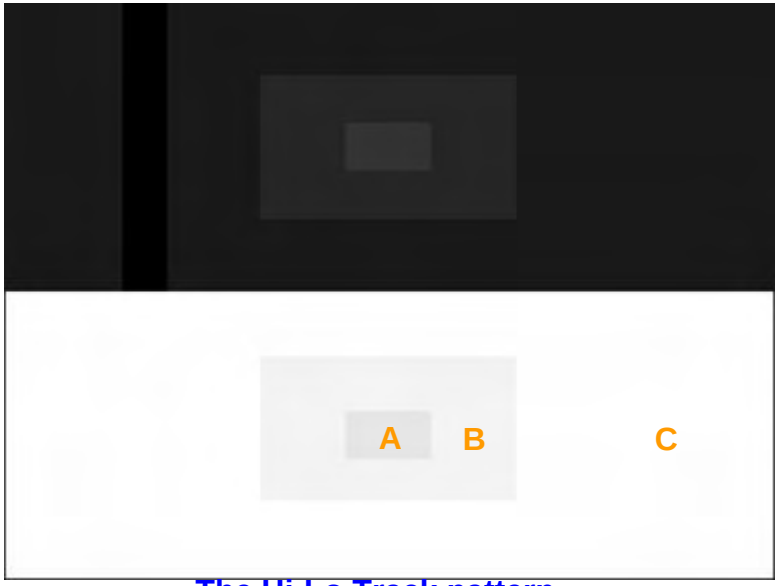
This pattern is used to adjust the television brightness control for proper black level.

To adjust the brightness:

- Input a Pluge pattern.
- Set the user brightness control to its midrange position (From picture's menu).
- Adjust the sub-brightness control in the service menu high enough to be able to see the alternation between black and blacker-than-black.
- Adjust the sub-brightness back down, just to the point that the difference between black and blacker-than-black is not noticeable.

Presetting Contrast Control

The contrast control, picture control, or more accurately called white level control, adjusts the light level of the white or high luminance portions of a scene. If the contrast control is set too low, the image is dim, the whites become dull and the image loses its luster. Since Plasma TVs have an absolute threshold of maximum light output, when the contrast control is set too high, brighter white objects become the same brightness level.



The Hi-Lo Track pattern

This pattern is used to adjust the contrast control for maximum white level without compression. It includes 100%, 97.5%, and 95% luminance areas, which allow to easily detect small amounts of white compression.

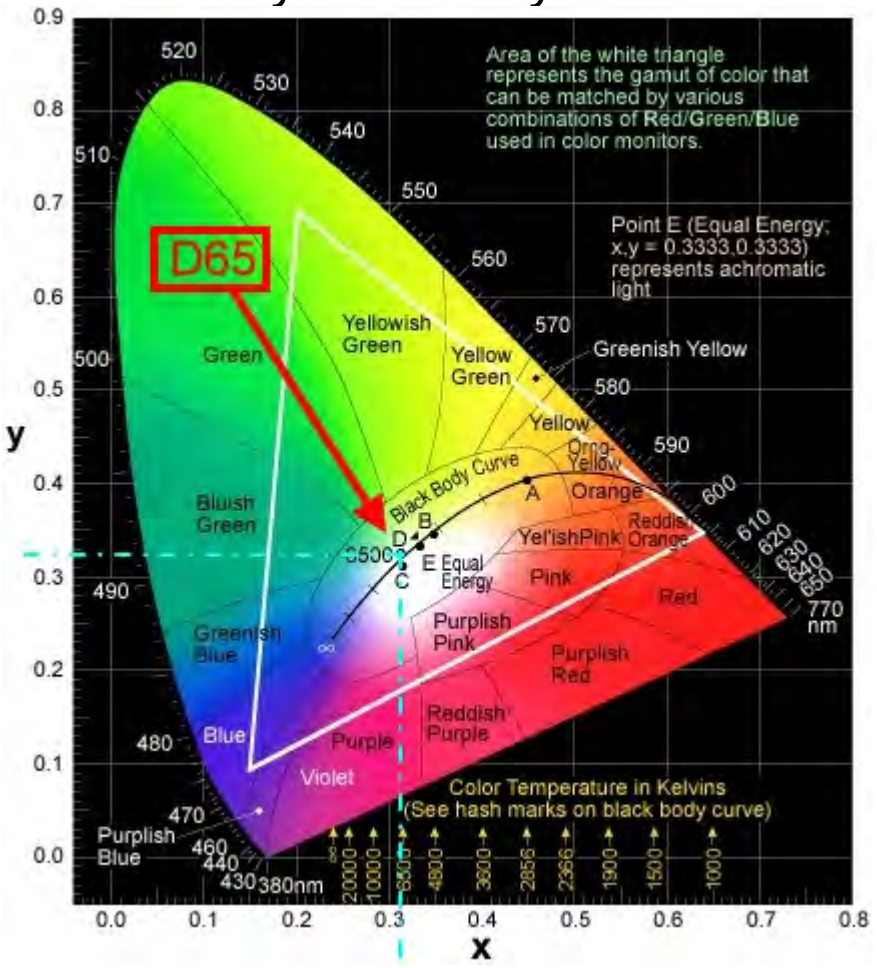
To adjust the contrast:

1. Adjust the contrast control high enough to cause the bright white rectangle (B) to just start blending into the full white background (C).
2. Back the control off just slightly to be sure there is no white compression occurring (There should be three bright white levels on the lower half of the pattern).
3. Recheck the brightness control after you adjust the contrast control, as the two controls may have some interaction.

White Balance Adjustment

The background color of the Plasma TV has to be adjusted to match the *industry standard white reference* (D65 Daylight standard). This is done so that all other colors are reproduced accurately when they are overlaid on the neutral background.

This background color needs to be correct across the entire grayscale, from darkest gray to brightest white. Most displays white balance the background at a fairly dark gray and at a medium-white gray. Once these two luminance levels are balanced perfectly, there should be very little color shift from the desired white reference at other luminance levels.



The chromaticity diagram is used to define color ranges, that show the effect of adding colors together.

Setup

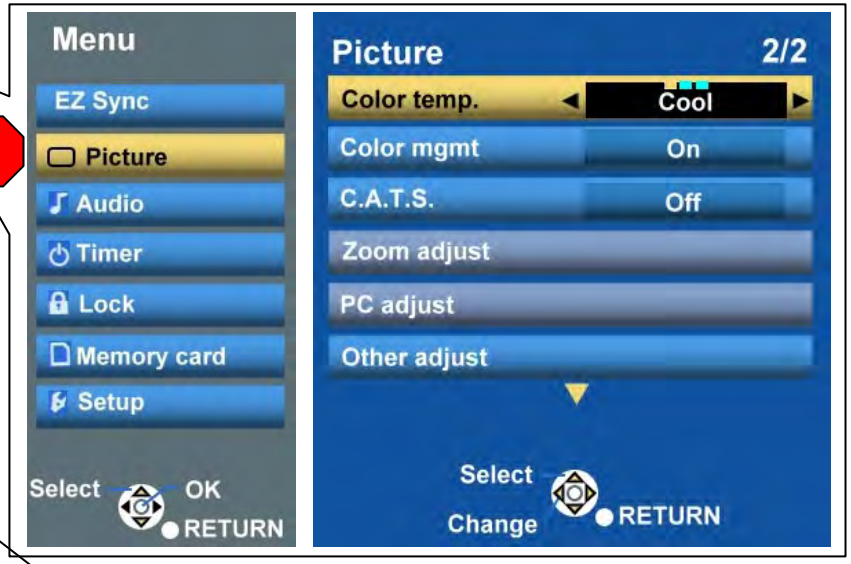
High Definition data adjustment

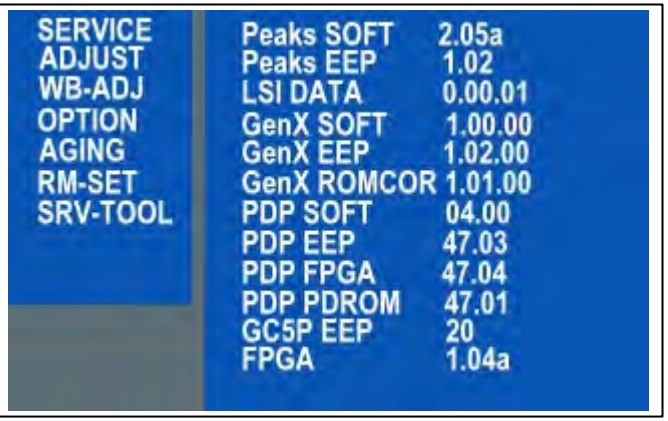


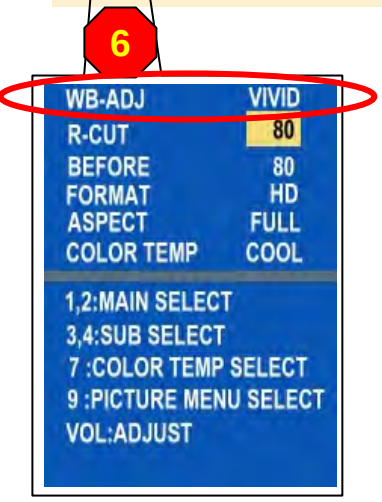
1. Connect the Video Generator to the component input jacks of the TV and set it to output a HD (1080i or 720p) 80 IRE window pattern. (Make sure the right input source is selected on the TV.
2. Attach the Colorimeter to the TV screen (Place it on the center of the window displayed).
3. Connect the USB connector of the Colorimeter to the PC.

White Balance Adjustment

4. Set the color temperature to “COOL” (Press the “Menu” button on the remote control and select picture. Go to the second page of the menu and set the “Color temp” to “COOL”).
5. Go into the “SERVICEMAN MODE” (Press and hold the Volume down button on the TV and press the “RECALL” button 3 times within 2 seconds on the remote control).
6. SELECT “WHITE BALANCE” adjustment (Press #1 or #2 on the remote control to select WB-Adj).
7. From the table 1 below (Normally found on the service manual) select the “HIGH (COOL)” data to set the “RED CUTOFF, GREEN CUTOFF, and BLUE CUTOFF” color temperature.







7

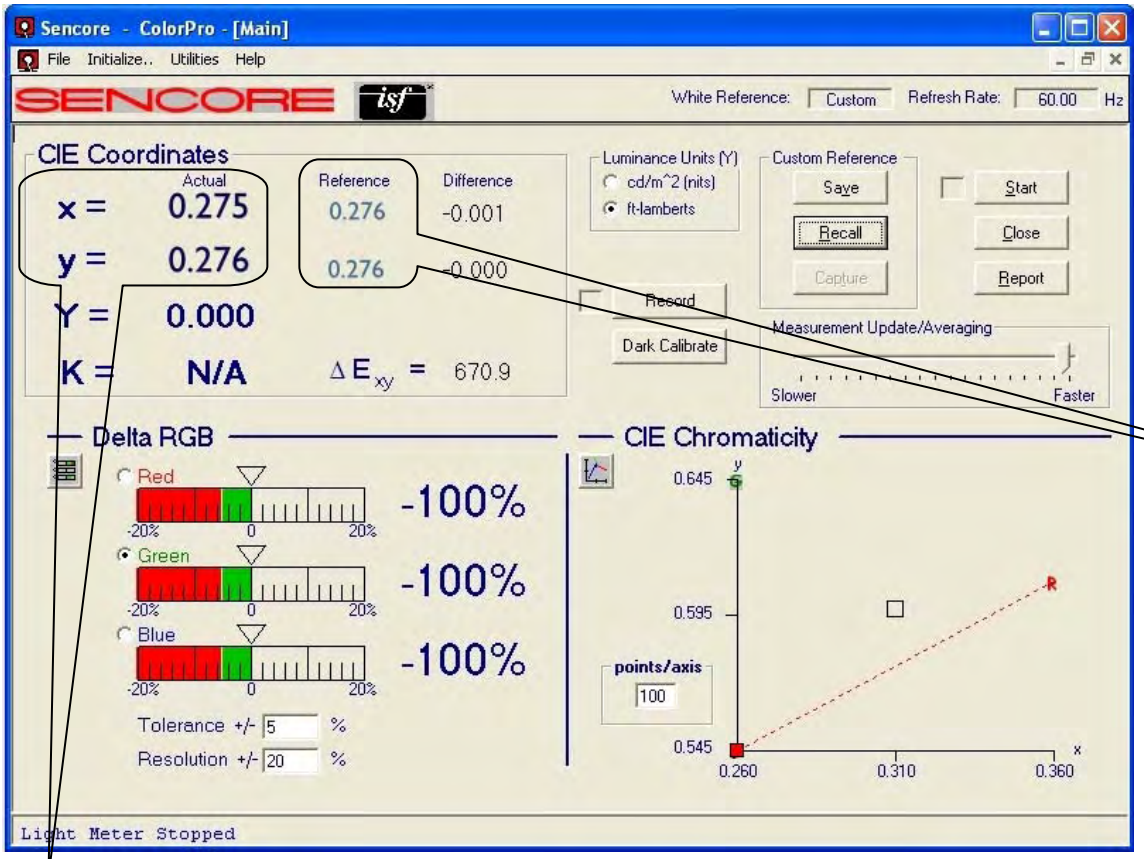
Color temperature	R-CUT	G-CUT	B-CUT
High(Cool)	80	80	80
Mid	80	80	80
Low(Warm)	80	80	80

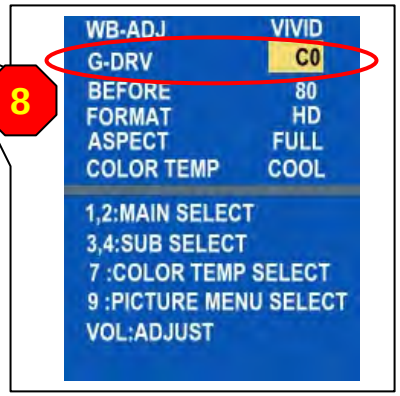
Table 1

WB Adjustment (Drive Controls Adjustment)

This adjustment is done to obtain color balance at high luminance

8. Set the "Green-Drive" data to C0. (Use VOL + or – to change data)



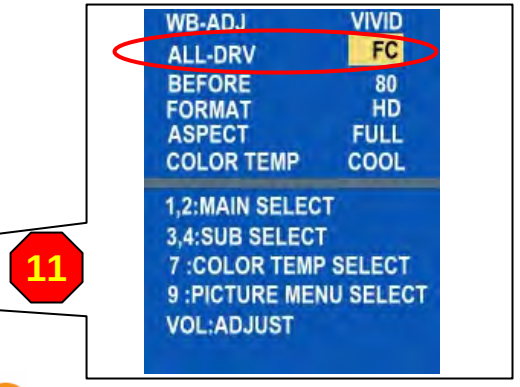


Color temperature	x	y
High(Cool)	0.276	0.276
Mid	0.288	0.296
Low(Warm)	0.313	0.329

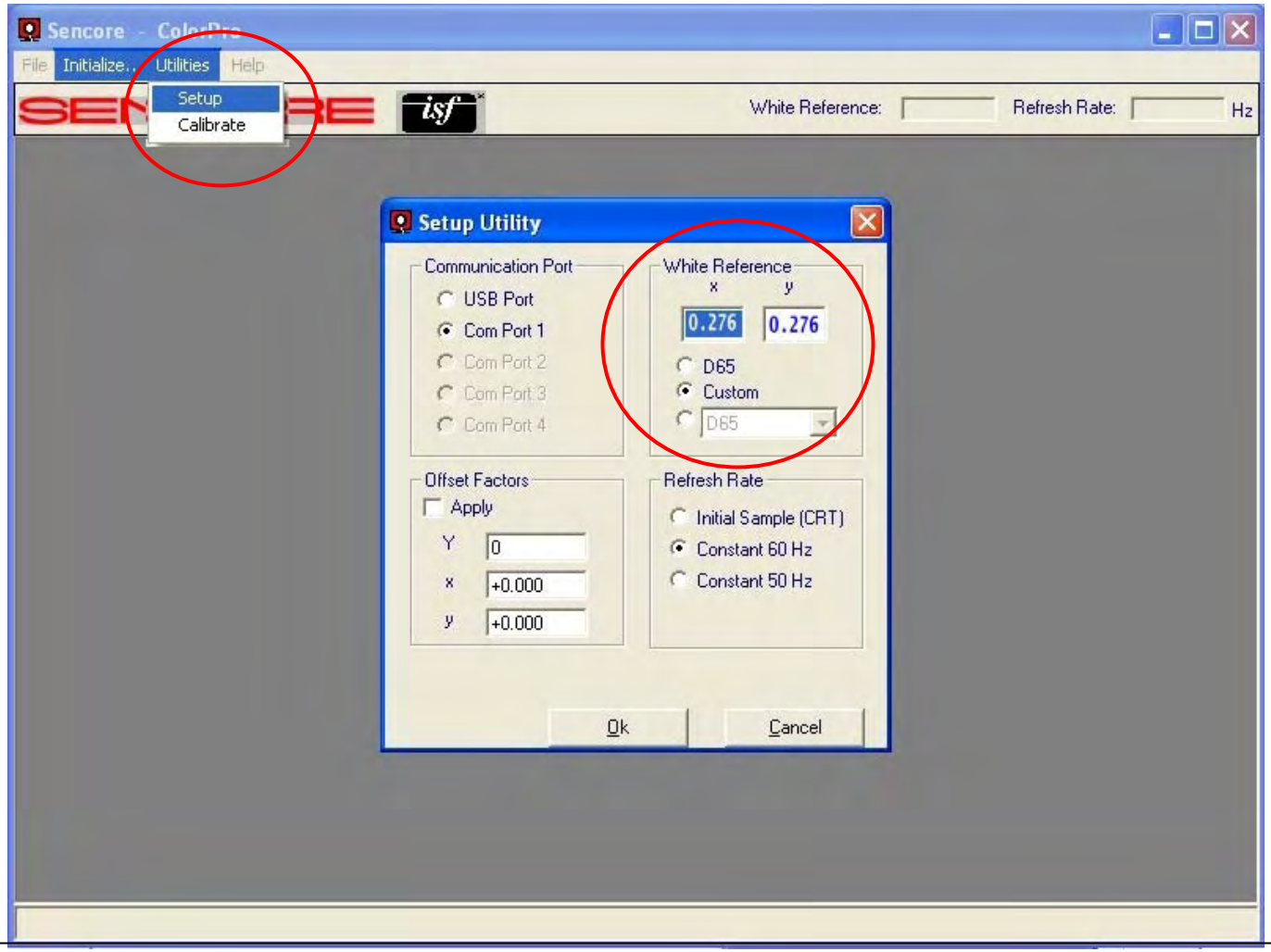
Table 2

Note: **See the next slide for instructions on how to enter the white reference value of x and y.**

9. Adjust "Blue-Drive" so it matches the "HIGH (Cool) X and Y values shown on table 2. (Enter the ref. values from table 2)
10. Adjust "Red-Drive" so it matches the "HIGH (Cool) X and Y values shown on table 2. (Enter the ref. values from table 2)
11. Set "ALL DRIVE" to FC.



How to Enter The Reference Value For X and Y



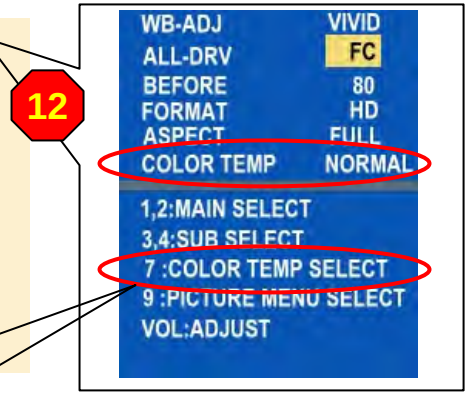
To enter the white reference values for x and y:

- Click on "Utilities" and select "Setup".
- On the "Setup Utility" menu, under "White Reference", select "Custom" and enter the values of x and y from table 2 on the previous slide.

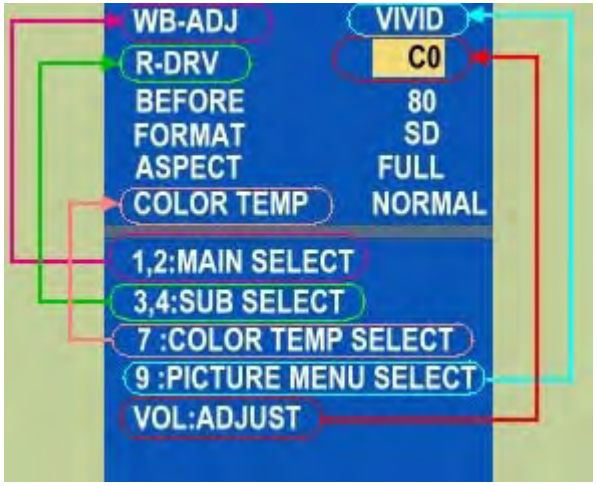
WB Adjustment (Drive Controls Adjustment)

This adjustment is done to obtain color balance at high luminance

12. Set the color temperature to “NORMAL” (Press #7 on the remote control to change the color temperature).
13. Repeat steps 7 through 11.
14. Set the color temperature to “WARM” (Press #7 on the remote control to change the color temperature).
15. Repeat steps 7 through 11.



To set the color temperature (Cool, Normal, or Warm), it’s not necessary to exit the “SERVICEMAN MODE”. This can be done from within the white-balance-adjustment menu by pressing the number 7 button on the remote control.



Note: The TV's Warm-preset is typically the closest one to the ideal color temperature of 6,500 kelvin.

Color temperature	x	y
High(Cool)	0.276	0.276
Mid	0.288	0.296
Low(Warm)	0.313	0.329

Table 2

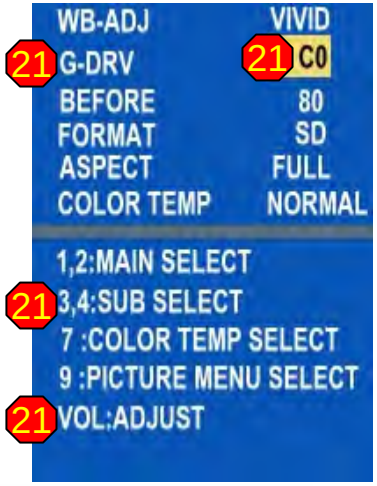
White Balance Adjustment

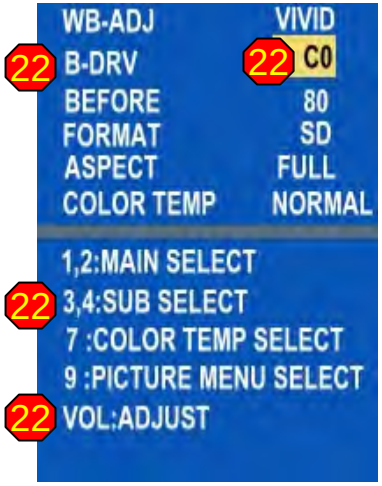
NTSC data adjustment

16. **With a HD signal still connected to the component input, set the color temperature to "COOL" (Press # 7 on the remote control to change the color temperature).**
17. **Press the # 3 button on the remote control to select the R-DRV, G-DRV, and B-DRV. Record the data values of the R-DRV, G-DRV, and B-DRV. (Write the data values in a piece of paper if necessary)**
18. **Switch the Video Generator to output a 480i 80-IRE-window pattern. (Make sure the right input source on the TV is selected).**
19. **Press # 7 on the remote control to change the color temperature to "NORMAL".**
20. **Press # 3 or # 4 on the remote control to select R-DRV and using the VOL + or –, change the data to match the value recorded for R-DRV data on step 17.**
21. **Press # 3 or # 4 on the remote control to select G-DRV and using the VOL + or –, change the data to match the value recorded for G-DRV on step 17. Then press the "VOL – " button twice on the remote control to deduct 2(Hexidecimal) from the recorded value.**
22. **Press # 3 or # 4 on the remote control to select B-DRV and using the VOL + or –, change the data to match the value recorded for G-DRV on step 17. Then press the "VOL – " button 22 times on the remote control to deduct 22(Hexidecimal) from the recorded value.**









White Balance Adjustment

NTSC data adjustment continue

23. **Press # 7 on the remote control to change the color temperature to “WARM”.**
24. **Press # 3 or # 4 on the remote control to select R-DRV and using the VOL + or –, change the data to match the value recorded for R-DRV data on step 17 on the previous slide.**
25. **Press # 3 or # 4 on the remote control to select G-DRV and using the VOL + or –, change the data to match the value recorded for G-DRV on step 17. Then press the “VOL –” button 10 times on the remote control to deduct A(Hexidecimal) from the recorded value. (Note: A hexidecimal is equal to 10 decimal)**
26. **Press # 3 or # 4 on the remote control to select B-DRV and using the VOL + or –, change the data to match the value recorded for G-DRV on step 17. Then press the “VOL –” button 62 times on the remote control to deduct 62(Hexidecimal) from the recorded value.**
27. **Press #1, #2, #3, or #4 to save the new data and then turn off the TV.**



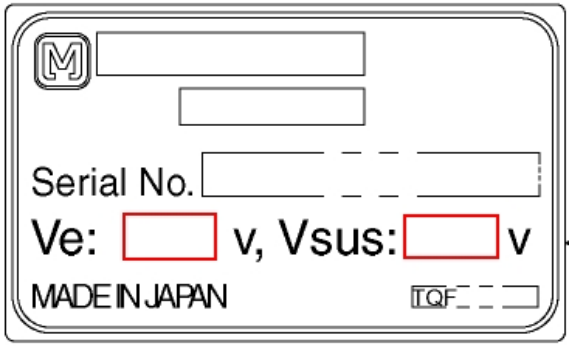




Driver Set-up Adjustment

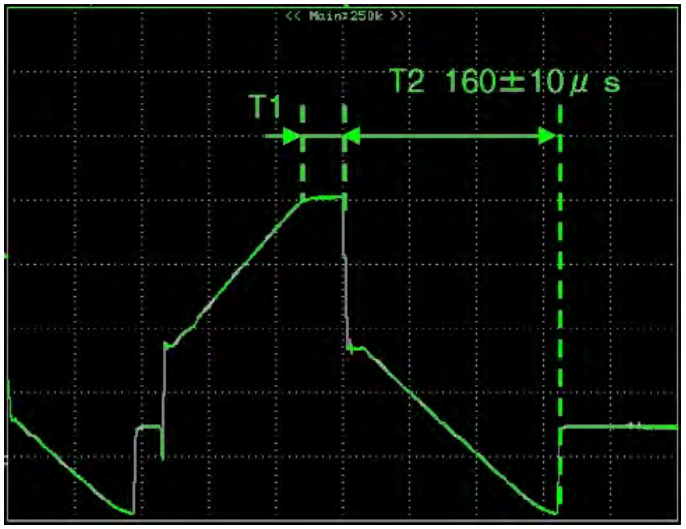
Preparation, 1. Input a white signal to plasma video input.
2. Set the picture controls as follows.
 - •Picture menu: Vivid
 - •Normal: Set
 - •Aspect: Full

Name	Test Point	Voltage	Volume	Remarks
Vsus	TPVSUS (SS)	Vsus ± 2V	VR251 (P)	*
Ve	TPVE (SS)	Ve ± 1V	VR6000 (SS)	*
Vset	TPVSET (SC)	240V ± 7V	Fixed	
Vad	TPVAD (SC)	-90V ± 1V	VR6600 (SC)	
Vscn	TPVSCN (SC)	Vad+140V ± 4V	Fixed	
Vda	TPVDA (SS)	75V + 1V, -3V	Fixed	



Initialization Pulse adjustment

1. Input a white signal to plasma video input.
2. Set the picture controls as follows.
 - •Picture menu : Vivid
 - •Normal : Set
 - •Aspect : Full
3. Connect Oscilloscope to TPSC1 (SC).
 Check that the flat section(T1) is less than 40µs.
 Check and adjust so that the stand down pulse(T2) period are each within specification.



	Test point	Volume	Level
T2	TPSC1 (SC)	VR6602 (SC)	160 ± 10µ Sec

TH-58PZ750
TH-50PZ750
TH-58PZ700
TH-50PZ700

	Test point	Volume	Level
T2	TPSC1 (SC)	VR6602 (SC)	250 ± 10µ Sec

TH-42PZ700

Procedure to Clean the Plasma TV Screen

- Use a micro-fiber cloth (available in camera stores) or a clean 100% cotton cloth. No wood based products (No paper towels, toilet paper, newspaper, etc.). Don't be fooled by "softness". Fine steel wool can feel "soft". It's the fibers that scratch.

- No chemicals like Windex, benzene, gasoline, ammonia, Soft Scrub, Lysol, 409, cheap "Window cleaner".

- First try to clean the screen dry (No chemicals or water). Quick light pressure strokes are better than hard, "scrubbing" strokes. This method should safely remove fingerprints.
- If more cleaning is needed:
 Use a bit of distilled water to dampen the cloth and try the light pressure strokes.
- LAST RESORT: A few drops of dishwashing (not dishwasher) solution dissolved in a lot of water to make a weak solution. Try the quick light strokes again.

- Dry clean the screen with the micro-fiber or 100% cotton cloth. The anti-reflective coating is like that of a fine camera lens. If the coating is scratched or damaged,

Panasonic Parts Department stocks Plasma Screen Cleaner Solution (Micro-fiber Cloth Included)

1oz bottle= Part Number SCREENKLEEN1
MSRP $6.99
Dealer Cost $4.00

4oz bottle= Part Number SCREENKLEEN4
MSRP $14.95
Dealer Cost $8.00

Glossary

A **colorimeter** is generally a tool that characterizes color samples to provide an objective measure of color characteristics.

Colorimeter Sencore CP5000
A colorimeter (Sencore CP5000) measures the light output and tells you how to adjust the displays red, green and blue cutoff and drive controls for a 6500 degree color temperature.

Color temperature: This control affects the entire palette of colors. Select the Warm or Low option, which should come closest to the NTSC standard of 6,500 degrees Kelvin.

Foot-Lambert
This is a unit representing the amount of light emitted by a source in an area of one square foot.

The National Television Standards Committee (NTSC) (Analog color TV)

The Advanced Television Standards Committee (ATSC) (Digital TV system)

CIE: International Commission on Illumination
CIE (Commission Internationale de l'Êclairage)
The International Commission on Lighting; the body responsible for international recommendations for photometry and colorimetry.

The End

Thank you!
Good day!